APPENDIX L

Utility Investigation Report

OTAY RIVER ESTUARY RESTORATION PROJECT

EXISTING UTILITY INVESTIGATION

FINAL REPORT

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1. INTRODUCTION

This report documents the utility investigation conducted by Everest International Consultants (Everest) for the Otay River Estuary Restoration Project in 2015. The area included in this effort consists of the area within the Otay River Estuary Restoration Project Area Boundary (the Otay River Floodplain (ORF) and Pond 15), as well as the construction impact area. These areas, collectively defined as the study area in this document, are shown in **Figure 1**. Public utility services and facilities that may exist in the study area include gas and oil, power/electric, communications, storm drains, water lines, and sanitary sewer lines and structures.

Figure 1. Study Area

In April 2015, Everest contacted 8-1-1 Underground Service Alert (DigAlert) with a request for information on potential utilities within the study area. The DigAlert research generated a list of the agencies that have existing underground utility facilities in the study area. Responsive agencies on the DigAlert list include AT&T Distribution, Cox Communications of South San Diego, and the City of San Diego; the remaining agencies that may have relevant utilities information include the California American Water Company, City of Chula Vista, City of Imperial Beach, and San Diego Gas & Electric (SDG&E) Gas Mapping & Records. **Table 1** lists the utility agencies provided by DigAlert and summarizes the status of response for each agency. In addition to the information obtained from these agencies, Everest staff also gathered information from other sources, including as-built drawings, the SDNWR CCP 2006[1], and other information provided by U.S. Fish and Wildlife Service (USFWS). The following sections summarize utility information obtained from the responsive agencies and other available sources.

Table 1. List of Utility Agencies in Study Area Provided by DigAlert

LIST OF UTILITY AGENCIES PROVIDED BY DIGALERT	RESPONSE STATUS *
AT&T Distribution	Information received
California American Water Company (CAWC)	CAWC representative's phone reply indicated that their facilities are likely not in the study area. Maps if needed have to be obtained in person at CAWC's office.
City of Chula Vista	No response
City of Imperial Beach	Email response received indicating that formal request with the City's Clerk is required. Request will be initiated if necessary.
City of San Diego	Information received
Cox Communications (South SD)	Information received
SDG&E Gas Mapping & Records	Information received

** Response as of July 2015*

[1] U.S. Fish and Wildlife Service. San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, "Final Comprehensive Conservation Plan and Environmental Impact Statement." August 2006.

2. GAS AND OIL PIPELINES

Information for existing gas lines within the study area was extracted from City of San Diego, Metropolitan Wastewater Department drawings[2]; San Diego Gas & Electric (SDG&E) maps[3], and corroborated with information in the SDNWR CCP 2006[4]. The existing gas utilities in the study area are shown in **Figures 2a and 2b**. Underground gas lines are found along sections of Saturn Boulevard, Louret Avenue, Bay Boulevard, Ada Street, Stella Street, Palomar Street, Pacific Avenue, and Dorothy Street[5].

Along Bay Boulevard, there are 8-inch and 3-inch/2-inch underground SDG&E gas pipelines. The 3-inch/2-inch pipeline changes from three to two inches in diameter at a point just north of the intersection of Bay Boulevard with Stella Street and continues north as a 2-inch line from that point; at this location, there is also a regulator joining the 3-inch/2-inch gas pipeline with the 8-inch pipeline (see **Figure 3**). It is not clear how far the 8-inch and 3-inch/2-inch pipelines may extend north beyond the intersection of Bay Boulevard with Palomar Street, and south beyond the intersection of Bay Boulevard with Anita Street. The 3-inch/2-inch pipeline has five offshoots that are smaller in size, ranging from one to two inches in diameter. These offshoots include two 2-inch, one 1.5-inch, and two 1-inch pipelines (see **Figure 2A**). Of the two 2-inch offshoots, one joins with Pacific Avenue and continues onto Dorothy Street[4] for an unspecified distance, and another juts out westward toward the bay from Bay Boulevard. The 1.5-inch offshoot travels eastward on Ada Street from its intersection with Bay Boulevard. It is not clear how far east the 1.5-inch offshoot pipeline may extend. The two 1-inch offshoots travel eastward along Stella Street and Palomar Street, from their intersections with Bay Boulevard. Residential gas hookup lines, typically less than 1-inch in diameter, that branch off from the offshoots to the 3-inch pipeline are not shown in the figure for clarity.

[2] City of San Diego, Metropolitan Wastewater Department. "Otay River Pump Station, Conveyance, and Fiber Optic Systems, Volume 2, Part C-Drawings", May 2002.

[3] Maps received from SDG&E, 7/9/2015.

[4] U.S. Fish and Wildlife Service. San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, "Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume I", p. 3-111 to 3-118, August 2006.

[5] The SDG&E map showing the Dorothy Street pipeline appears to erroneously label Dorothy Street as Elise Street.

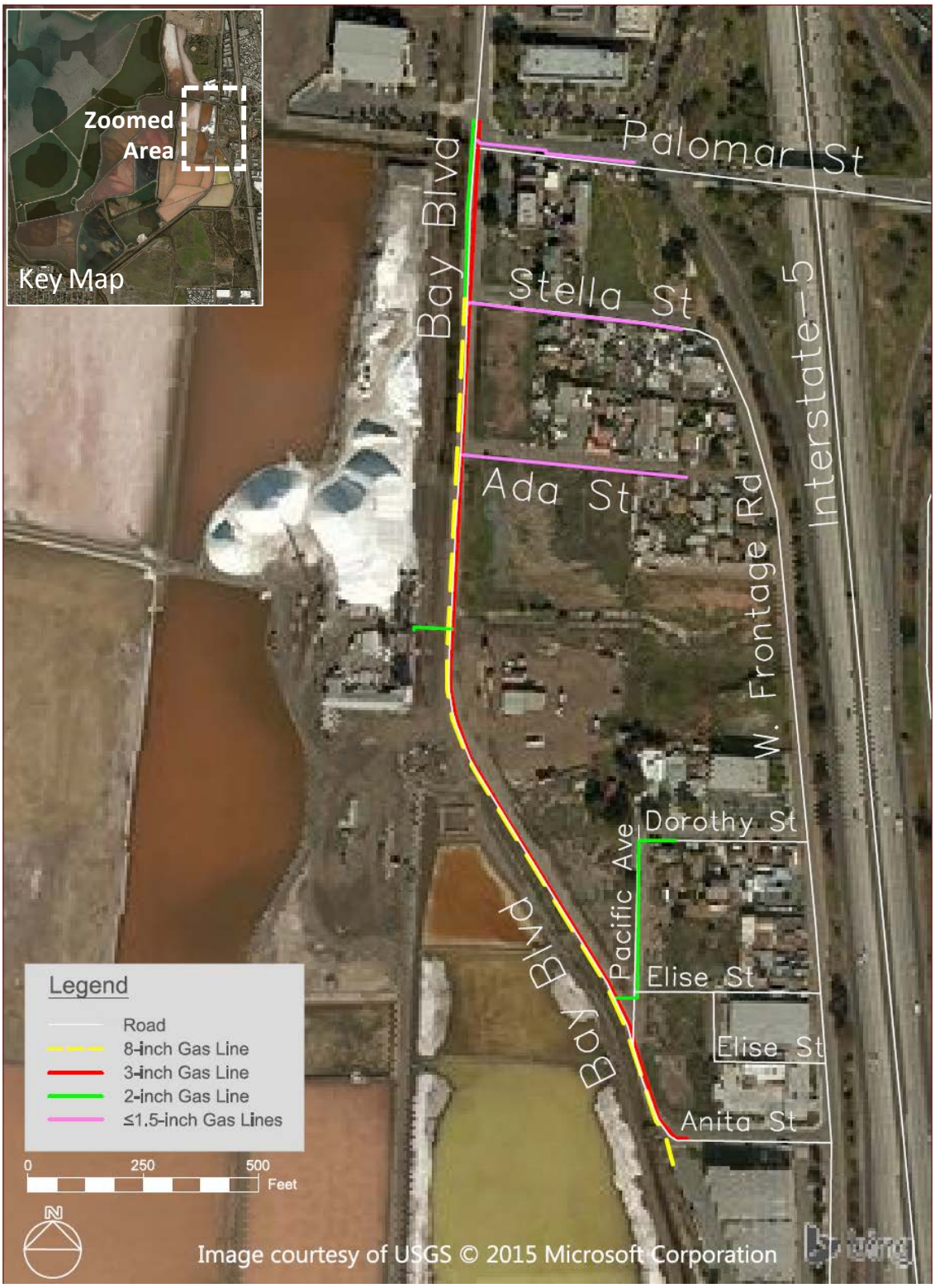


Figure 2a. Approximate Locations of Existing Gas and Oil Pipelines (1 of 2)

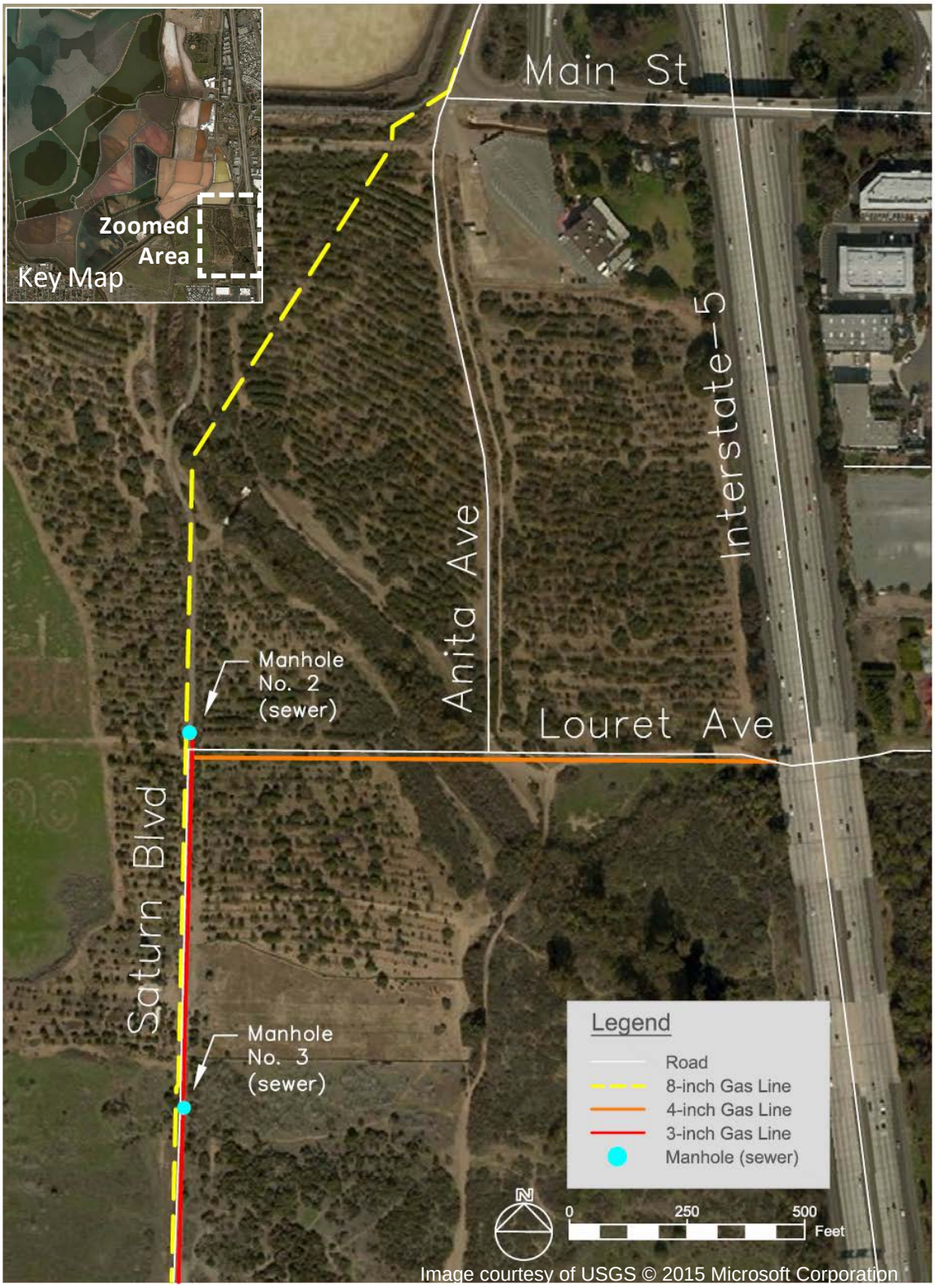


Figure 2b. Approximate Locations of Existing Gas and Oil Pipelines (2 of 2)

There are also 8-inch and 3-inch underground SDG&E gas pipelines along Saturn Boulevard. On Saturn Boulevard, the 8-inch line makes a small southwest deviation from its course just north of Manhole No. 3, approximately 28 feet in length, and continues on south afterwards. The 8-inch line makes another deviation at a point a few hundred feet north of the intersection of Saturn Boulevard and Louret Avenue; this deviation has an 18-foot section oriented in a northwest-southeast direction and a 62-foot section oriented in a northeast-southwest direction. The 3-inch line intersects and splits off from a 4-inch line (described below) at the intersection of Saturn Boulevard and Louret Avenue, and then travels south along Saturn Boulevard and parallel to the 8-inch line (see **Figure 4**). From Saturn Boulevard, the 8-inch gas line appears to extend northeast towards and beyond Main Street. A drawing from the City of San Diego Metropolitan Wastewater Department shows that the section of 8-inch gas line extending northeast from Saturn Boulevard to Main Street runs parallel to two sewer lines; however, the SDG&E maps shows the same 8-inch gas line section oriented at a slightly greater angle from true north, which means the gas line would run alongside but no longer parallel to the two sewer lines (page 86, SDG&E 20153). **Figure 2B** shows an approximation of the SDG&E version of this pipeline section, as SDG&E is likely the definitive source on the utilities under its jurisdiction.

Based on the SDG&E maps, a 2-inch gas pipeline appears to branch off from the 8-inch gas pipeline described above, approximately where the 8-inch pipeline meets Main Street—just south of the intersection of Main Street with West Frontage Road (see **Figure 5**). It is not clear how far east this 2-inch pipeline may extend.

There is a 4-inch underground gas line, also owned/operated by SDG&E, within Louret Avenue that connects with both the 8-inch and 3-inch lines at the intersection of Saturn Boulevard and Louret Avenue (see **Figure 4**); the map shows an elevation of roughly 11 feet (vertical datum unknown) for this pipeline at this intersection. It is not known how far the pipeline extends eastwards beyond the intersection of Louret Avenue with Anita Avenue.

Detailed maps of the SDG&E gas utilities were provided by SDG&E[6]; these maps provide pipeline length measurements, connection locations, and additional details not pictured in the figures in this document. Information about oil utilities, and further information about gas pipelines was not available at the time that this report was prepared.

[6] Pages 81-86 and 89-93 of the 96-page map book provided by SDG&E 7/9/2015.

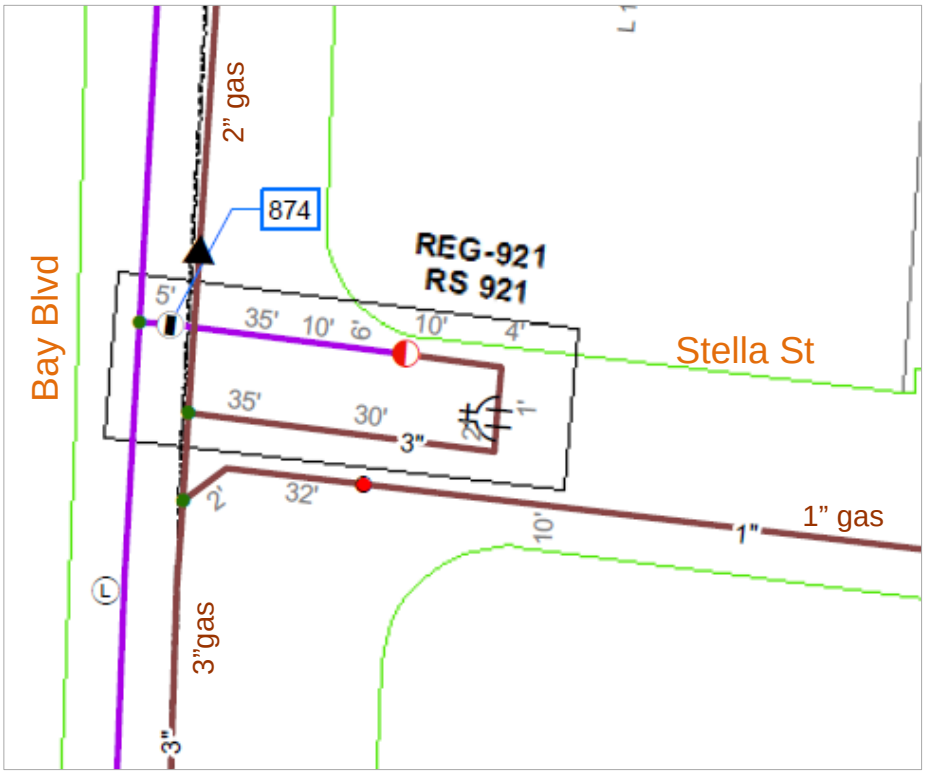


Figure 3. Close-up of Existing SDG&E Gas Pipelines, Regulator, and other Utilities near the Intersection of Bay Boulevard and Stella Street (Adapted from p.93 SDG&E Maps)

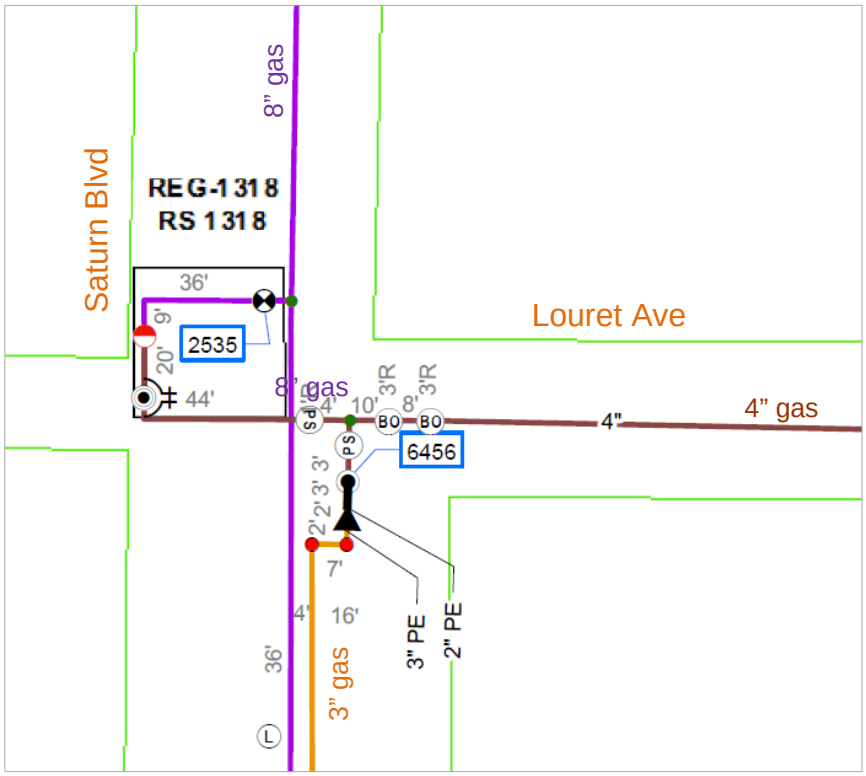


Figure 4. Close-up of Existing SDG&E Gas Pipelines, Regulator, and other Utilities at the Intersection of Saturn Boulevard and Louret Avenue (Adapted from p.84 SDG&E Maps)

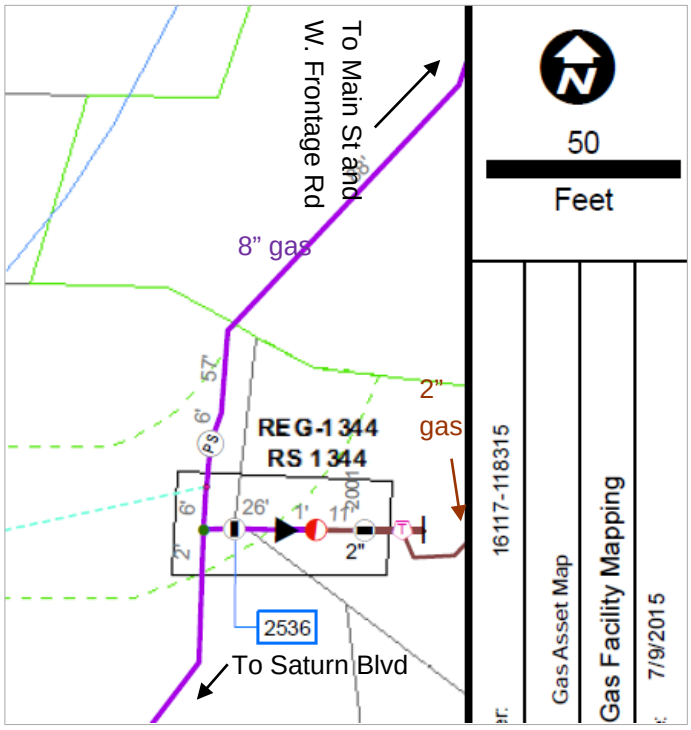


Figure 5. Close-up of Existing SDG&E Gas Pipelines, Regulator, and other Utilities near the Intersection of Main Street and W. Frontage Road (Adapted from p.86 of SDG&E Maps)

3. POWER LINES AND STRUCTURES

Information for existing power lines and structures was obtained from City of San Diego, Metropolitan Wastewater Department drawings[7]; San Diego Gas & Electric (SDG&E) maps[8], and corroborated with both information in an available SDNWR CCP 2206[9] and from Google Earth aerial images. The existing power utilities in the study area are shown in **Figures 6 and 7**. Underground and overhead power utilities are found along Saturn Boulevard, Louret Avenue, Bay Boulevard, West Frontage Road, Stella Street, Ada Street, Dorothy Street, Anita Street, and Palomar Street. Additional power poles and lines may be scattered throughout the study area but are not detailed in this document.

Saturn Boulevard contains an underground 3-inch PVC electrical transmission conduit (Sch. 80, 69 kV/128kV) that continues onto Louret Avenue, and appears to terminate at the intersection of Louret Avenue and Anita Avenue. This conduit appears to be bundled with a communications cable (fiber optic conduit). A short offshoot of the electrical conduit juts out westward from Saturn Avenue, adjacent to and south of the intersection between Saturn Boulevard and Louret Avenue; this offshoot connects to an associated meter pedestal which lies adjacent to and southwest of the intersection between Saturn Boulevard and Louret Avenue.

Power poles (PP) line the sides of Saturn Boulevard, Bay Boulevard, West Frontage Road and are scattered along smaller side streets. Approximate locations of the power poles were estimated based on drawings from the City of San Diego, maps from SDG&E, and corroborated using Google Earth aerial images. Overhead power lines joining these poles were approximated based on the power pole locations and using Google Earth aerial images. **Figure 8** shows two photographs of the power poles and overhead lines.

Two 3-inch underground power lines run parallel along West Frontage road and branch off onto Anita Street. Some additional sections of underground power line are shown on **Figure 6**, though the sections that lie within private property are omitted from this report.

[7] City of San Diego, Metropolitan Wastewater Department. “Otay River Pump Station, Conveyance, and Fiber Optic Systems, Volume 2, Part C-Drawings”, May 2002.

[8] Maps received from SDG&E, 7/14/2015.

[9] U.S. Fish and Wildlife Service. San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, “Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume I”, p. 3-111 to 3-118, August 2006.

Figure 6. Approximate Locations of Existing Power Utilities (1 of 2)

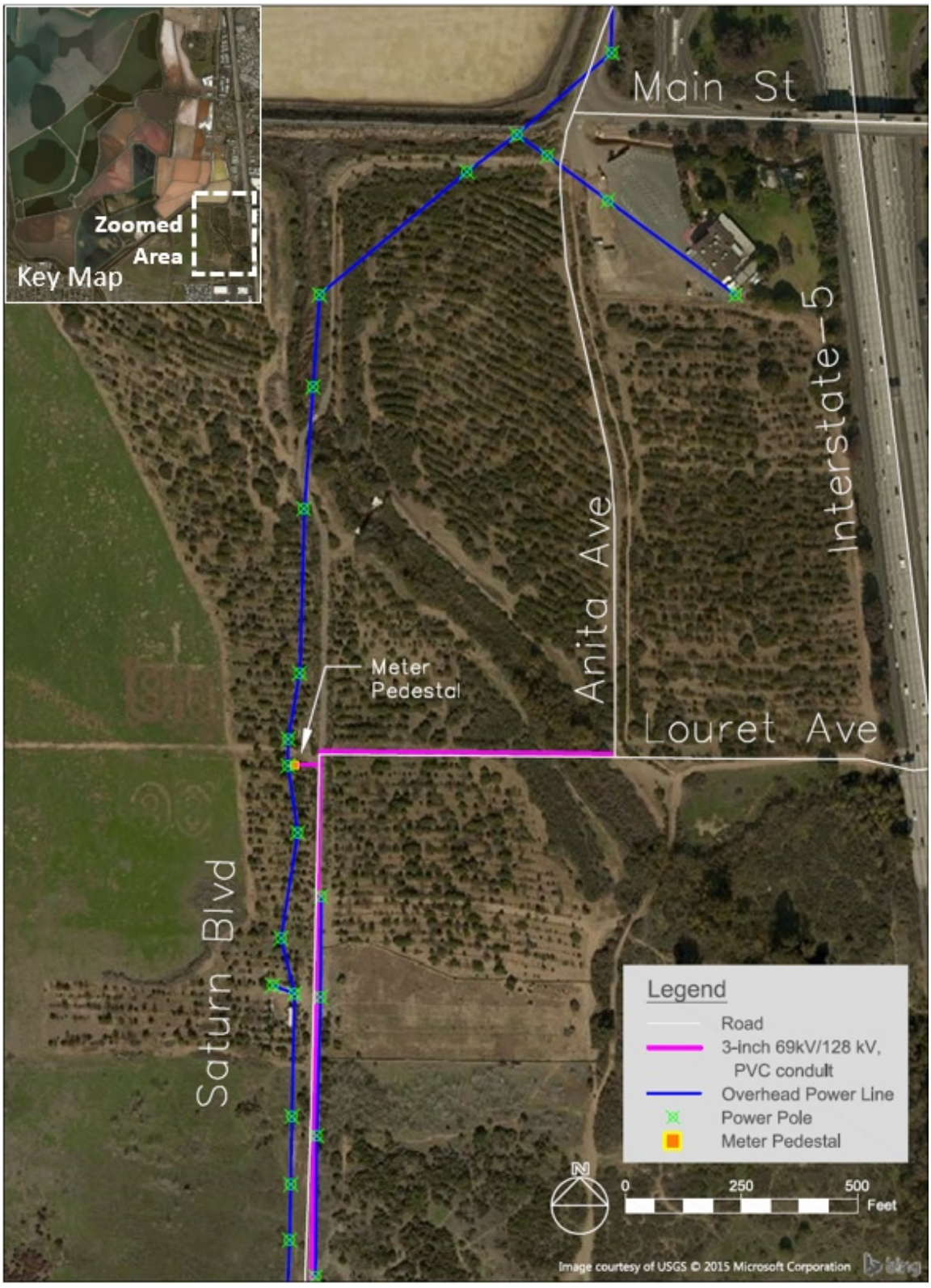


Figure 7. Approximate Locations of Existing Power Utilities (2 of 2)

Photos taken during Site Visit on 4/22/2015

Figure 8. Photos showing Overhead Power Lines and Gas Manhole along the Undeveloped Road North of Saturn Boulevard in ORF

Detailed maps of the SDG&E power utilities were provided by SDG&E[10]; these maps provide power line length measurements, connection locations, power ratios, and additional details not pictured in the figures in this document. Further information about power utilities was not available at the time that this report was prepared.

4. COMMUNICATIONS

Information for existing communications utilities within the study area was obtained from City of San Diego, Metropolitan Wastewater Department drawings[11] and Cox Communications maps[12]. The existing communications utilities in the study area are shown in **Figures 9a and 9b**. Communications utilities are found along and adjacent to sections of Saturn Boulevard, West Frontage Road, and Bay Boulevard.

[10] Map pages provided by SDG&E 7/14/2015.

[11] City of San Diego, Metropolitan Wastewater Department. "Otay River Pump Station, Conveyance, and Fiber Optic Systems, Volume 2, Part C-Drawings", May 2002.

[12] Cox Communications. "Cox_Cable_SOUTH SD BAY MAP SCALE 1 to 2000." Received April 2015.

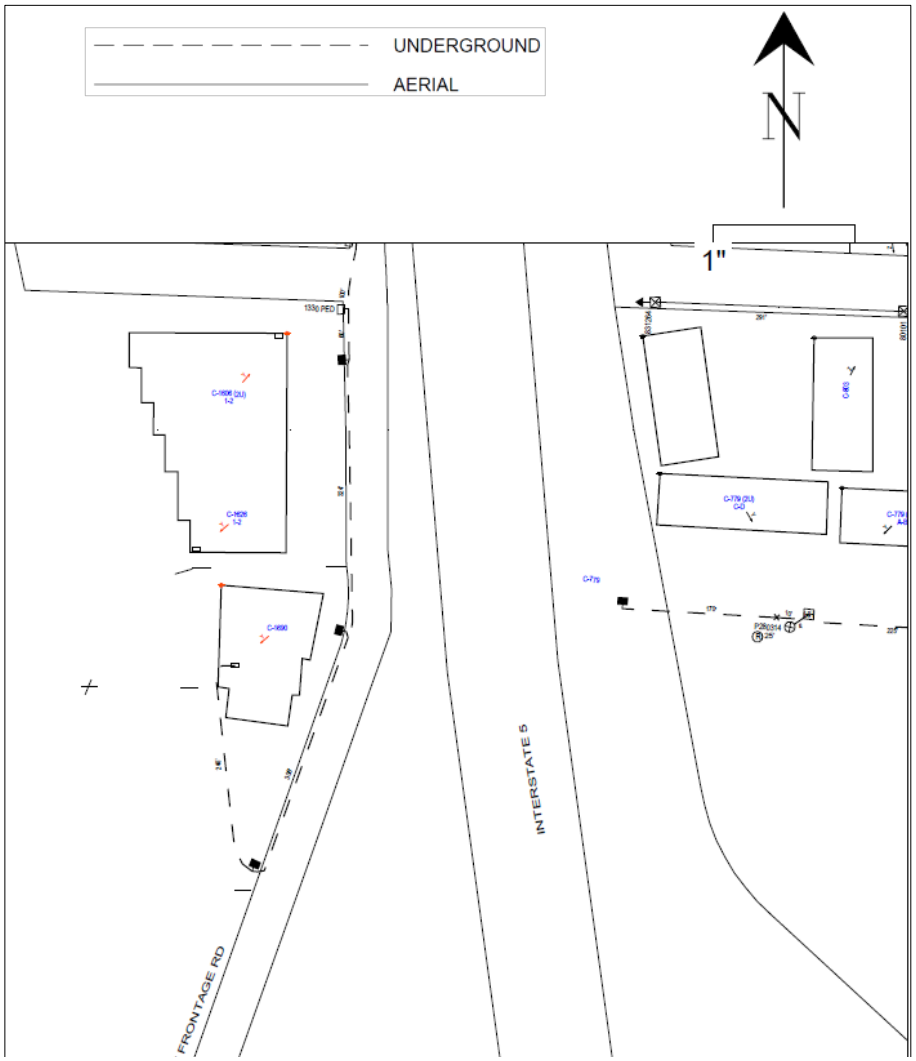
Figure 9a. Approximate Locations of Existing Communications Utilities (1 of 2)

Figure 9b. Approximate Locations of Existing Communications Utilities (2 of 2)

A 2-inch underground fiber optic conduit (Sch. 80) runs parallel with gravity sewer line along Saturn Boulevard from Boundary Avenue to Louret Avenue, and on Louret Avenue, where it appears to terminate at the intersection of Louret Avenue and Anita Avenue. The reference drawings[7] indicate the minimum cover over this 2-inch line is 3 feet. A fiber optic pull box, Pull Box No. 2, is located on Saturn Boulevard, adjacent to (and south of) the intersection between Saturn Boulevard and Louret Avenue.

An underground Cox Communications line runs northwards from a building several hundred feet south of the intersection between West Frontage Road and Anita Street. The line appears to head south for a couple hundred feet, connect to what appears to be a utilities box, and curve northwards along West Frontage Road (on the western side of the road) (see **Figure 10**). The line is connected to additional utilities boxes along West Frontage Road (also see **Figure 10**). It is unclear how far north the line continues since the reference map does not show the entire area of interest. There is another stretch of Cox Communications line that runs through Bay Boulevard (along the eastern side of the road), from a point just south of its intersection with Palomar Street northwards to a point that lies beyond the northeastern extent of the study area; this line includes a short offshoot from Bay Boulevard that juts west towards a cluster of buildings at a point roughly 300 feet north of the intersection between Bay Boulevard and Palomar Street.

Further information about communication utilities was not available at the time that this report was prepared.



Source: Cox Communications

Figure 10. Northernmost Extent of Available Cox Communications Utilities Map, Showing Area around West Frontage Road and Interstate-5

5. WATER LINES AND STORM DRAINS

Information for existing water lines and storm drain utilities within the study area was obtained from City of San Diego, Metropolitan Wastewater Department drawings[13] and GIS data[14]; a survey CAD file prepared for the SDNWR CCP 2006[15]; and corroborated with information obtained in the SDNWR CCP 2006 report[16]. The existing water lines and storm drains in the study area are shown in **Figure 11**.

5.1 Storm Drains

Along Saturn Boulevard is a 24-inch underground storm drain pipeline. This pipeline has an invert elevation (IE) of 6.49 feet (NAVD88) near the intersection of Louret Avenue and Saturn Boulevard, and an IE of 7.42 feet (NAVD88) farther south on Saturn Boulevard, roughly 350 feet north of the intersection between Saturn Boulevard and Boundary Avenue. This pipeline appears to have an offshoot that juts off to the west from a point approximately 350 feet north of the intersection between Saturn Boulevard and Boundary Avenue. It is unclear how far west the line may or may not extend. Associated with the storm drain pipelines are drainage structures (mostly manholes) that are scattered throughout the study area, primarily along Saturn Boulevard.

Based on a qualitative description in the SDNWR CCP, the City of Imperial Beach maintains five storm drain outlets that affect the waters within the Refuge. Out of these five storm drain outlets, the only outlet that appears to be within or adjacent to the study area is a 36-inch underground reinforced concrete pipe that empties into the Otay River channel between 12th Street and Florence Street.

[13] City of San Diego, Metropolitan Wastewater Department. "Otay River Pump Station, Conveyance, and Fiber Optic Systems, Volume 2, Part C-Drawings", May 2002.

[14] Via http://www.sandiego.gov/publicutilities/customerservices/gis.shtml

[15] Survey conducted by Ducks Unlimited in 2000 for U.S. Fish and Wildlife Service for the preparation of San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, "Final Comprehensive Conservation Plan and Environmental Impact Statement".

[16] U.S. Fish and Wildlife Service. San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, "Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume I", p. 3-111 to 3-118, August 2006.

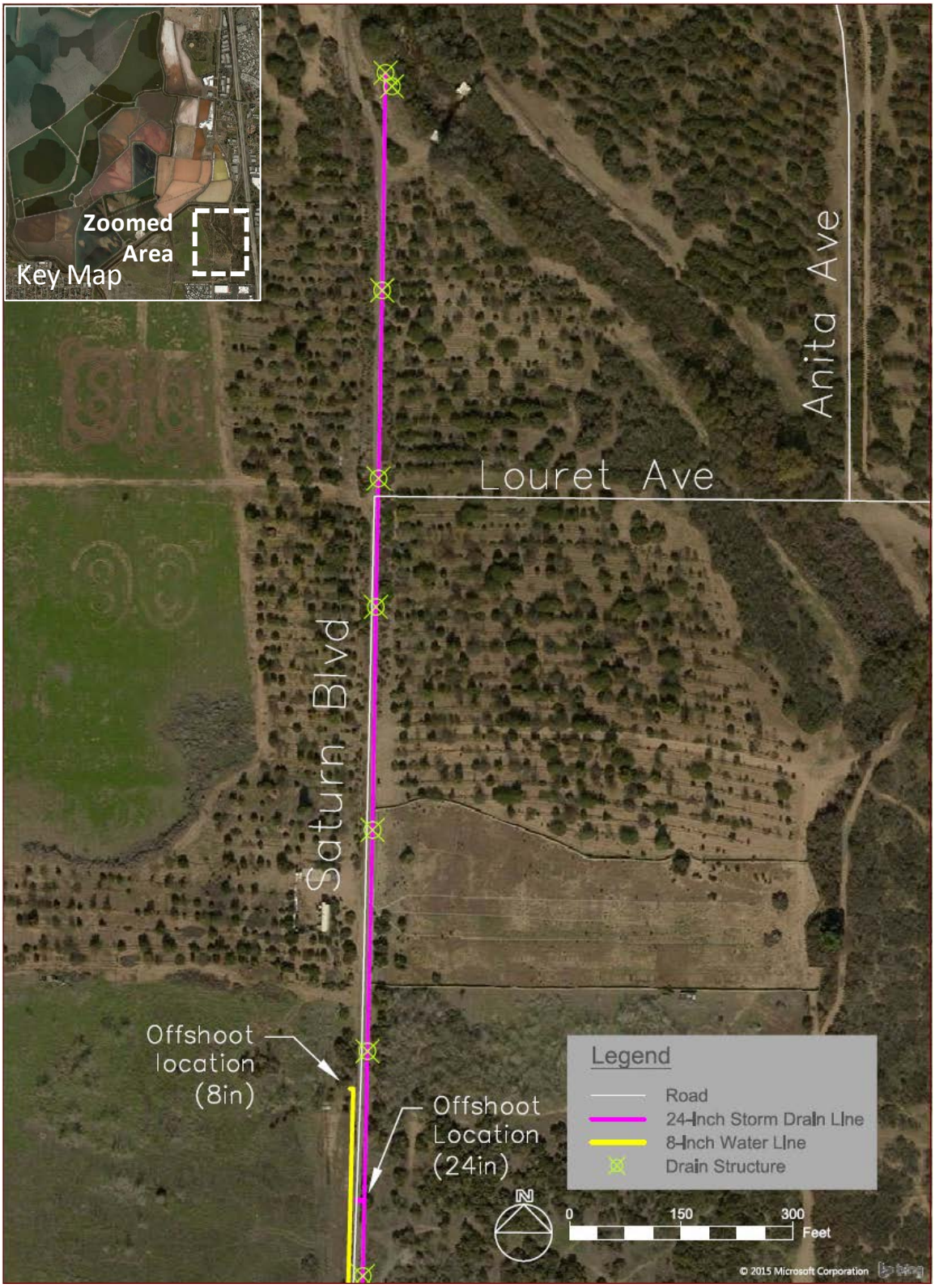


Figure 11. Existing Water Lines and Storm Drains

5.2 Water Lines

Water utilities are found along and adjacent to Saturn Boulevard, and scattered throughout the study area. As shown in **Figure 11**, there is an 8-inch underground water line that also lies along Saturn Boulevard. This 8-inch water line appears to terminate roughly 800 feet south of Louret Avenue, and is owned/operated by the California American Water Company. This pipeline appears to have an offshoot that juts off west from the northern end.

The California American Water Company was contacted in April 2015 and again in June 2015, during which time we were notified that the requested maps and information can only be viewed in-person at their office. As another option, California American Water Company staff may potentially be available to meet a work crew at the job site. Further information about water utilities was not available at the time that this report was prepared.

6. SEWER

Information for existing sanitary sewer utilities within the study area was obtained from the City of San Diego, Metropolitan Wastewater Department drawings[17] and GIS data[18]; a historic map from the San Diego National Wildlife Refuge Complex[19]; and corroborated with information in SDNWR CCP 2006[20]. The existing sewer utilities in the study area are shown in **Figure 12**. Sewer utilities are found along and adjacent to Saturn Boulevard, Louret Avenue, Anita Avenue, and other parts of the study area.

Along Saturn Boulevard is the underground 54-inch South Metro Interceptor pipeline. When this pipeline nears the Otay River, it turns northeast and continues toward and beyond Main Street. Wrapping around the eastern side of the Salt Works and Ponds, this pipeline continues northward along Bay Boulevard. There are also two short pipeline offshoots from Bay Boulevard, which jut eastward from the Bay Boulevard section between Palomar Street and Anita Street.

[17] City of San Diego, Metropolitan Wastewater Department. “Otay River Pump Station, Conveyance, and Fiber Optic Systems, Volume 2, Part C-Drawings”, May 2002.

[18] Via http://www.sandiego.gov/publicutilities/customerservices/gis.shtml

[19] Victoria Touchstone, San Diego National Wildlife Refuge Complex. “old palm sewage site.pdf”, received June 2015.

[20] U.S. Fish and Wildlife Service. San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, “Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume I”, p. 3-111 to 3-118, August 2006.

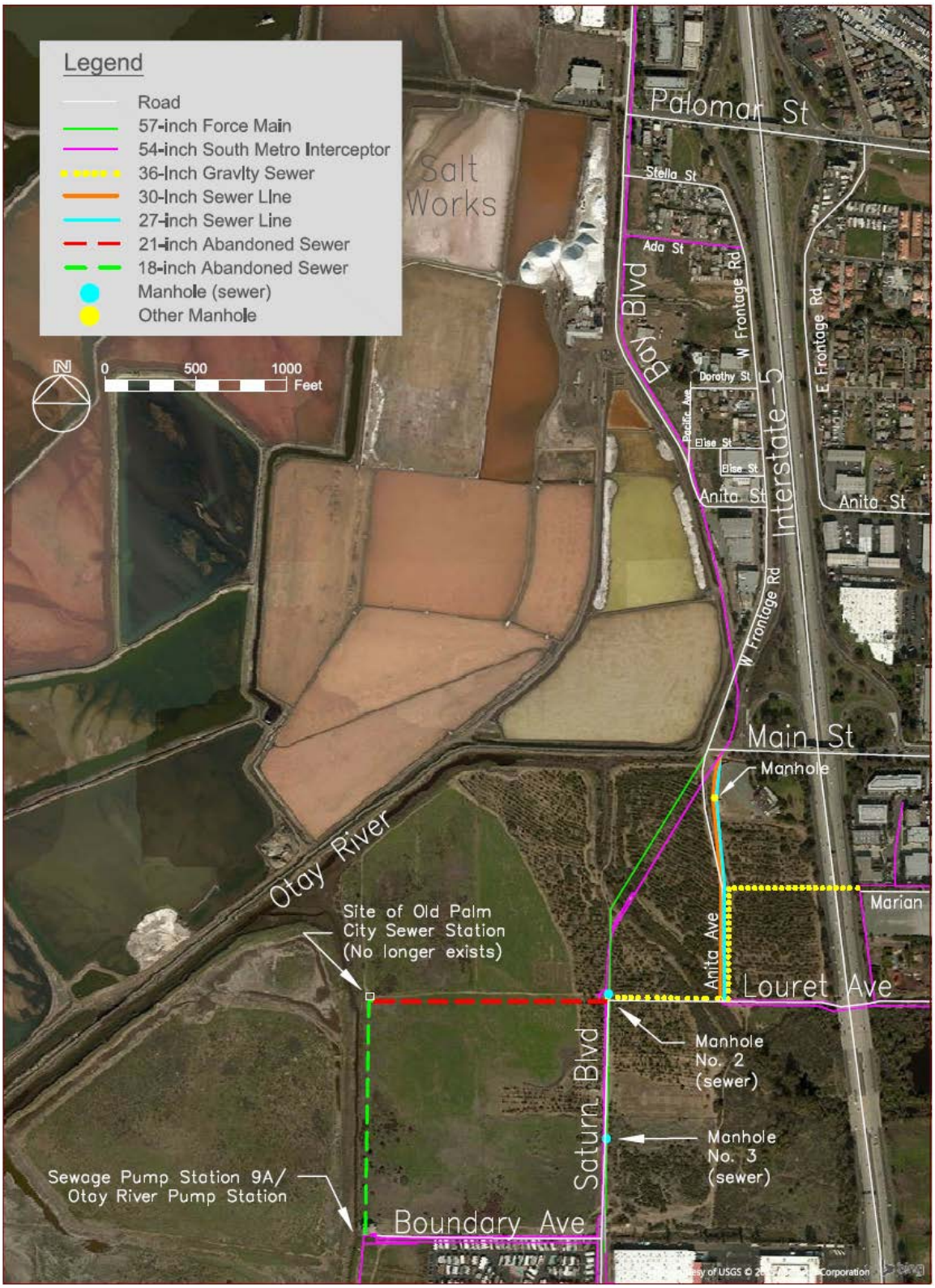


Figure 12. Approximate Locations of Existing Sewer Utilities

A 57-inch underground force main runs parallel to and alongside the 54-inch South Metro Interceptor on Saturn Boulevard, from south of the intersection between Saturn Boulevard and Boundary Avenue, and continuing toward and beyond Main Street. It is not clear how far north the pipeline extends.

A 36-inch underground PVC gravity pipeline extends westward from the intersection of Louret Avenue and Anita Avenue until it intersects with Saturn Boulevard—where it passes under Manhole No. 2, then turns south, continues along Saturn Boulevard from Louret Avenue towards Boundary Avenue—passing under Manhole No. 3 on Saturn Boulevard, and continuing onto Boundary Avenue and appearing to terminate at the Sewage Pump Station 9A/Otay River Pump Station. Manhole No. 2 lies at the intersection of Saturn Boulevard and Louret Avenue, and has a 7-foot diameter, rim EL of 12.38 feet, and an IE of -5.54 feet (vertical datum unknown). Manhole No. 3 has a 5-foot diameter[21], a rim EL of 13 feet, and an IE of -6.44 feet (vertical datum unknown). The 36-inch gravity pipeline slopes downward at -0.11% as it travels south from the Otay River. Additionally, the pipeline extends north on Anita Avenue from the intersection of Anita Avenue and Louret Avenue, enters a diversion structure at Marian Avenue, then travels north as a 30-inch sewer line, paralleling a 27-inch sewer pipeline owned and maintained by the Montgomery Sanitation District.

Based on a qualitative description in the U.S. Fish and Wildlife Service report, the underground 27-inch pipeline that is owned and maintained by the Montgomery Sanitation District extends along Anita Avenue, from Louret Avenue and continuing north within an easement through Refuge property and on towards Main Street.

Also extending along Anita Avenue from Louret Avenue and continuing north beyond Main Street is a 30-inch underground pipeline. A manhole appears to be located between this sewer line and the parallel 27-inch sewer line at a location just south of the intersection of Anita Avenue and Main Street. It is unclear which pipeline(s) to which this manhole is connected.

Just north of the intersection of Louret Avenue with Saturn Boulevard, there is a short underground pipeline offshoot from the 54-inch Saturn Boulevard pipeline which is comprised of a northeast-southwest section of 24-inch pipeline and a north-south section of 21-inch pipeline.

[21] Per San Diego Regional Standard Drawings (SDRSD)

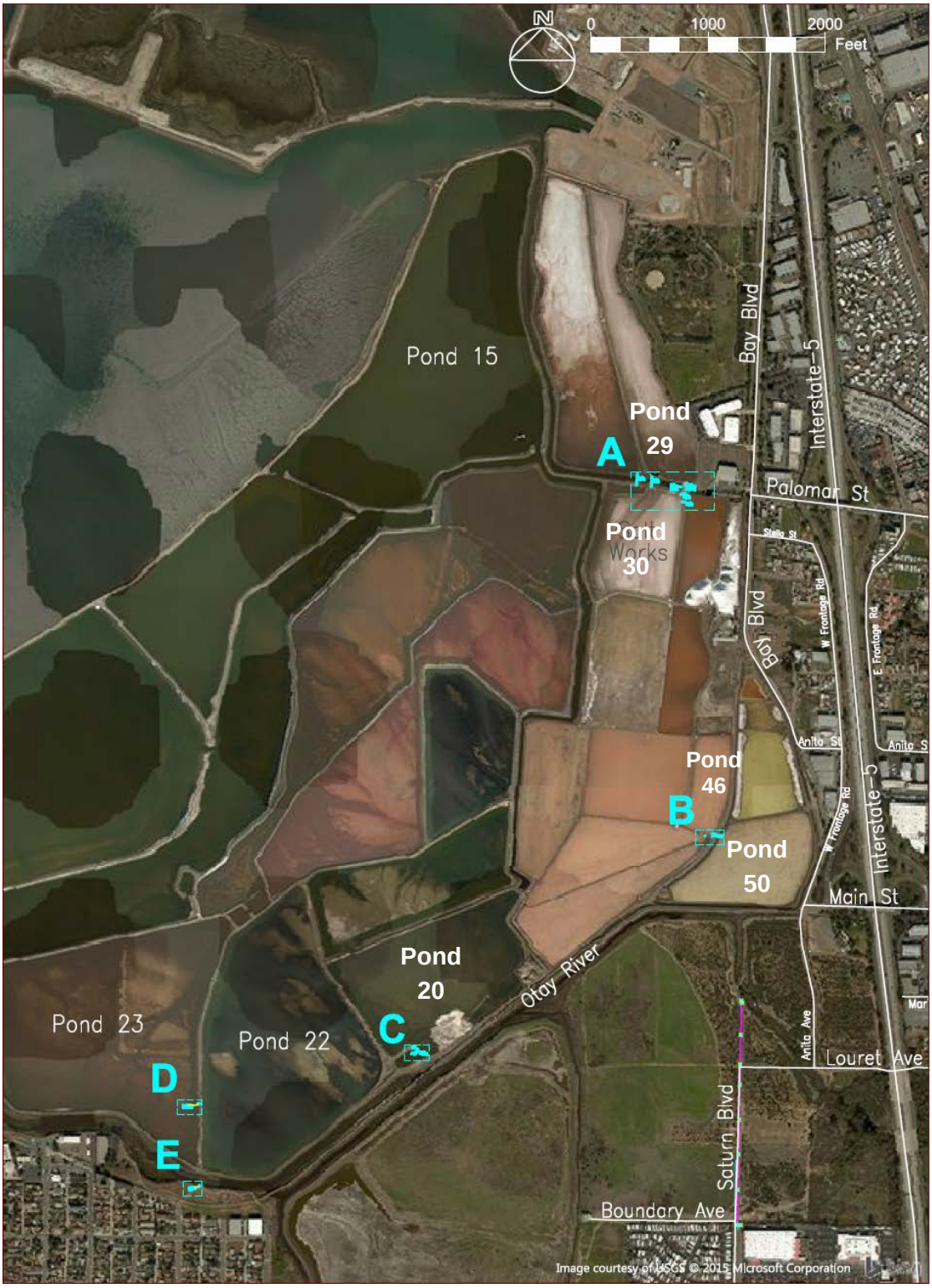
Based on the historic San Diego National Wildlife Refuge Complex map and a qualitative description in the U.S. Fish and Wildlife Service report, an abandoned 18-inch pipeline extends north through Refuge property from the Otay River pump station to the site of the old Palm City sewer pump station (approximate location of the pipeline and pump station shown in **Figure 12**). Also based on the same sources, another abandoned pipeline (21-inch) extends east from the old Palm City sewer pump station through Refuge property to Saturn Boulevard (also shown in **Figure 12**).

Further information about sewer utilities was not available at the time that this report was prepared.

7. SALT WORKS AND WILDLIFE REFUGE UTILITIES

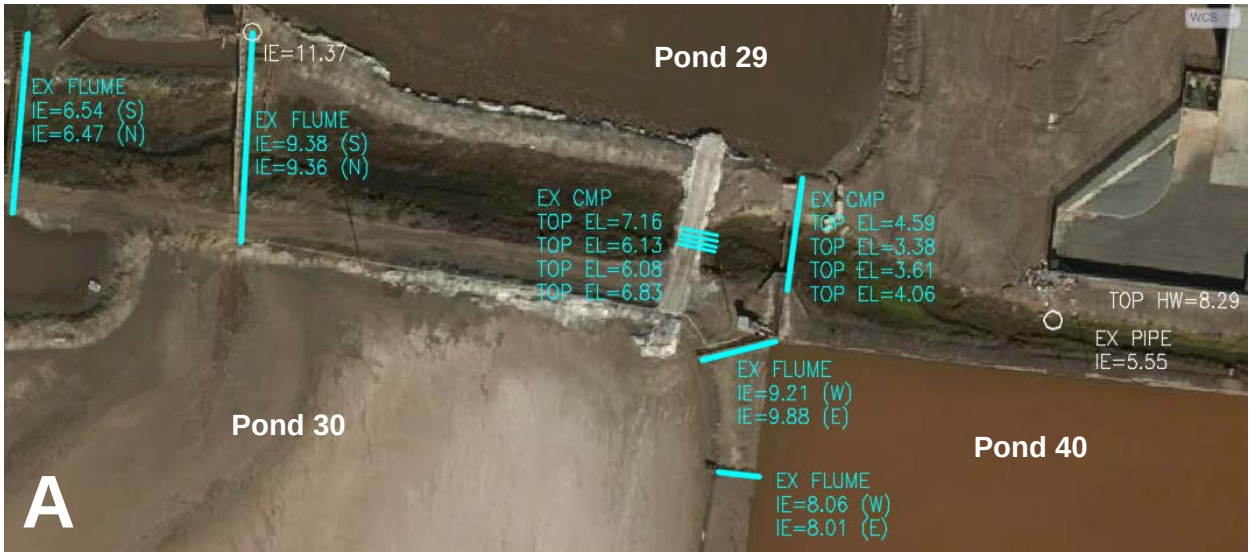
Information for existing Salt Works and San Diego Bay Wildlife Refuge (SDWR) utilities within the study area was obtained from a survey CAD file showing existing features[22]. The existing Salt Works and SDWR utilities in the study area are shown in **Figures 13 to 15**.

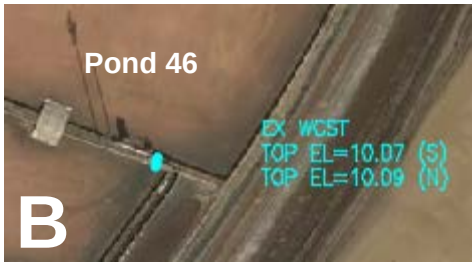
[22] Survey conducted by Ducks Unlimited in 2000 for U.S. Fish and Wildlife Service for the preparation of San Diego Bay National Wildlife Refuge, Sweetwater Marsh and South San Diego Bay Units, "Final Comprehensive Conservation Plan and Environmental Impact Statement".

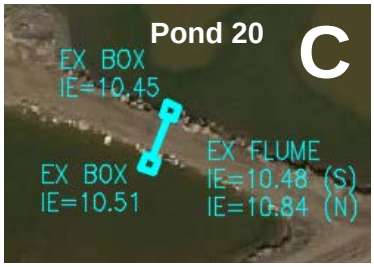


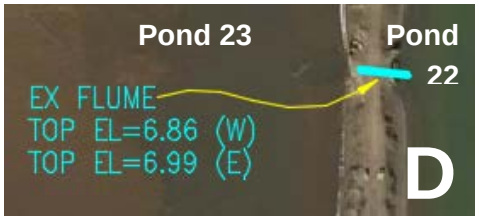
Note: See Figure 14 for enlarged details.

Figure 13. Existing Salt Works and SDWR Utilities in Study Area









Notes:

1. *See Figure 13 for Locations A to E.*
2. *Vertical measurements are in feet, NAVD88.*
3. *Abbreviations:*

CMP = Corrugated Metal Pipe
E = East;
EL= elevation
EX = Existing
IE = Invert Elevation
N = North
RCP = Reinforced Concrete Pipe
HW = Headwall
S = South
W = West
WCST = Welded Carbon Steel Tube

Figure 14. Details of Existing Salt Works Utilities

As shown in **Figure 14**, there is a 36-inch underground reinforced concrete pipe adjacent to the southwest corner of Pond 22 (Location E). This storm drain has an outlet into the Otay River, with a top elevation of the headwall at 9.56 ft, NAVD88 and invert elevations of 9.56 and 5.39 feet (NAVD88), respectively.

A flume on the western face of Pond 22 spans Pond 22 and Pond 23. The top elevation (EL) of the western end at Pond 23 is 6.86 feet (NAVD88), and the top EL of the eastern end at Pond 22 is 6.99 feet (NAVD88).

There is a flume adjacent to the easternmost point of Pond 22. The flume appears to join a very small pond with a larger pond. The northern end has an invert elevation of 10.84 feet, and the southern end an invert elevation of 10.48 feet. Additionally, there are associated structures/boxes—one on each end of the flume—that have invert elevations of 10.45 and 10.51 feet (NAVD88) for the northern and southern ends, respectively.

On the western side of the Salt Works, there is another utility structure. The top ELs of this WCST structure are 10.09 and 10.07 feet (NAVD88) for the northern and southern ends, respectively.

At the northern end of the Salt Works, there are several structures including flumes and pipes.

Figure 14 A shows a series of four culvert pipes providing hydraulic connectivity at the channel crossing (light-colored) north of Pond 30, only two of the pipes were visible from the photo taken during a site visit conducted on April 22, 2015 (**Figure 15**).

Figure 15. Existing CMP Culverts Providing Hydraulic Connectivity at the Channel Crossing Located North of Pond 30

8. SUMMARY AND NOTES

- Based on information obtained from the responsive agencies and other available sources, most of the known utilities within the study area are situated in and along the Saturn Boulevard right-of-way, with additional utilities located along Bay Boulevard and West Frontage Road, which may be in the path of the Project construction traffic.
- Additional utilities were observed outside the project area from available sources. This information is not included in this report.
- Utility information documented here represents current condition of the utility facilities found in currently available records. Coordination with the Underground Utilities Alert (DigAlert) and utilities agencies, and utilities investigation updates should be conducted during final engineering design and construction.